

Louisville Metro Air Pollution Control District
850 Barret Ave., Louisville, Kentucky 40204
September 24, 2014

Construction Statement of Basis

Company: E. I. DuPont de Nemours & Co., Inc.

Plant Location: 4200 Camp Ground Road, Louisville, KY 40216

Date Application Received: 2/14/1994

Application Number:

Public Comment Date: 09/25/2014

Proposed Permit Date: 09/25/2014

District Engineer: Shannon Hosey

Permit No: 657-94-C (R1)

Plant ID: 0062

SIC Code: 2819

NAICS: 325188 & 325199

AFS: 0062

Introduction:

This permit will be issued pursuant to District Regulation 2.03, Authorization to Construct or Operate; Demolition/Renovation Notices and Permit Requirements. Its purpose is to provide methods of determining continued compliance with all applicable requirements.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO₂), carbon monoxide (CO), 1 hr and 8 hr ozone (O₃), and particulate matter less than 10 microns (PM₁₀); and is a non-attainment area for particulate matter less than 2.5 microns (PM_{2.5}) and partial non-attainment for sulfur dioxide (SO₂).

Application Type/Permit Activity:

☐ Initial Issuance

☐ Permit Revision

☐ Administrative

☐ Minor

☐ Significant

☐ Permit Renewal

☒ Construction

Compliance Summary:

☐ Compliance certification signed

☐ Compliance schedule included

☐ Source is out of compliance

☒ Source is operating in compliance

I. Source Information

1. **Product/Process Description:** E. I. DuPont de Nemours & Co., Inc. (DuPont) manufactures refrigerant gases.
2. **Site Determination:** There are no other facilities that are contiguous or adjacent and under common control.
3. **Emission Unit Summary:**

Unit	Name
U1	Two (2) natural gas boilers equipped with low NO _x burners.

4. Permit Revisions:

Revision No.	Date or Reissuance	Public Notice Date	Type	Emission Unit	Description
Initial	N/A	N/A	Initial	Entire Permit	Two Boilers
R1	xx/xx/2014	09/25/2014	Revision	Entire Permit	Lowered the NO _x limit, removed CO limit because netting was performed and they "netted out". Removed the PM limit because it was higher than the potential PM emissions

5. **Fugitive Sources:** There are no fugitive emissions for this project.

6. Plant-wide Emission Summary:

Pollutant	Actual Emissions (tpy) 2010 Data	Pollutant that triggered Major Source Status (based on PTE)
CO	19.32	Yes
NO _x	36.17	Yes
SO ₂	0.18	No
PM ₁₀	22.22	No
VOC	17.54	No
Single HAP > 1 tpy		
Hydrochloric Acid	1.35	Yes
Hydrogen Fluoride	1.00	No
Total HAPs	3.35	No

7. Applicable Requirements:

<input type="checkbox"/> PSD	<input checked="" type="checkbox"/> 40 CFR 60	<input checked="" type="checkbox"/> 40 CFR 63	<input checked="" type="checkbox"/> SIP
<input type="checkbox"/> NSR	<input type="checkbox"/> 40 CFR 61	<input checked="" type="checkbox"/> District-Origin	<input type="checkbox"/> Other

8. Referenced Federal Regulations in Permit:

40 CFR 60 Db	Standards of Performance for Industrial Commercial Institutional Steam Generating Units
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40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air
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Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

II. Regulatory Analysis

1. **Acid Rain Requirements:** The source is not subject to the Acid Rain Program.
2. **Stratospheric Ozone Protection Requirements:** Title VI of the CAAA regulates ozone depleting substances and requires a phase out of their use. This rule applies to any source that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. E. I. DuPont de Nemours & Co., Inc. produces chlorodifluoromethane (R22) and currently uses chlorodifluoromethane and SUVA® 134a as refrigerants in process refrigeration machines. Chlorodifluoromethane is a Class II refrigerant under Title VI and the source shall comply with all applicable Title VI requirements of 40 CFR Part 82 Protection of Stratospheric Ozone Subpart A, Production and Consumption Controls and 40 CFR 82 Protection of Stratospheric Ozone Subpart F, Recycling and Emissions Reduction. SUVA® 134a is not a Class II or Class I refrigerant and is not regulated by Title VI. The District does not have Title VI authority.
3. **Prevention of Accidental Releases 112(r):** E. I. DuPont de Nemours & Co., Inc. stores and processes difluoroethane and vinyl fluoride in excess of the 10,000 pound threshold quantity, chloroform in excess of the 20,000 pounds threshold quantity, chlorine in excess of the 2,500 pounds threshold quantity, and hydrogen fluoride (at greater than 50% concentration) in excess of the 1,000 pounds threshold quantity, and therefore, is required to comply with 40 CFR 68 Chemical Accident Prevention Provisions Subpart G Risk Management Plan and Regulation 5.15 Chemical Accident Prevention Provisions. A plan was received on September 30, 2010.
4. **Basis of Regulation Applicability**

a. **Applicable Regulations:**

Regulation	Title	Type
2.03	Authorization to Construct or Operate; Demolition/Renovation Notices and Permit Requirements	SIP
5.00	Standards for Toxic Air Contaminants and Hazardous Air Pollutants	Local
5.01	General Provisions	SIP
5.02	Federal Emission Standards for Hazardous Air Pollutants Incorporated by Reference	Local
5.20	Methodology for Determining Benchmark Ambient Concentration of a Toxic Air Contaminant	Local
5.21	Environmental Acceptability for Toxic Air Contaminants	Local
5.22	Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant	Local
5.23	Categories of Toxic Air Contaminants	Local
6.42	Reasonably Available Control Technology Requirements for Major Volatile Organic Compound- and Nitrogen Oxides-Emitting Facilities	SIP
7.06	Standards of Performance for New Indirect Heat Exchangers	SIP
40 CFR 60 Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	SIP
40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters	SIP

Regulations 5.00, 5.01, 5.20, 5.21, 5.22 and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards.

The TAC emissions from the combustion of natural gas are considered to be “de minimis emissions” by the District. This includes all of the emissions from a process or process equipment for which the only emissions are the products of combustion of natural gas, such as from a natural gas-fired boiler or turbine, but does not include the other emissions from a process or process equipment that are not the products of the combustion of natural gas. (Regulation 5.21, section 2.7)

Regulation 2.03, section 6.1 requires sufficient monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the District upon request.

b. **Basis for Applicability**

Regulation	Basis for Applicability
2.03	Establishes requirements for Permits to Construct and Operate
5.00	Establishes definitions of terms used in the Strategic Toxic Air Reduction Program.
5.01	Establishes general provisions for process equipment from which a toxic air contaminant is or may be emitted.
5.02	Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants
5.20	Establishes the methodology for determining the benchmark ambient concentration of a toxic air contaminant.
5.21	Establishes the criteria for determining the environmental acceptability of emissions of toxic air contaminants.
5.22	Establishes the procedures for determining the maximum ambient concentration of a toxic air contaminant.
5.23	Establishes categories of toxic air contaminants.
6.42	Applies to the VOC and NO _x emissions from all VOC and NO _x -emitting facilities located at all major VOC and NO _x -emitting stationary sources
7.06	Applies to each indirect heat exchanger having input capacity of more than one million BTU per hour commenced after September 1, 1976.
40 CFR 60 Subpart Db	Subpart Db applies to steam generating units for which construction or modification is commenced after June 19, 1984 and that have a maximum design heat input capacity greater than 100 MMBtu/hr.
40 CFR 63 Subpart DDDDD	Applies to facilities with Industrial, Commercial, and Institutional Boilers and Process Heaters located at a major source

c. **Emission Unit U1 Powerhouse**i. **Equipment**

Emission Point	P/PE	Installation Date	Applicable Regulation
1000	174 MMBtu/hr Babcock and Wilcox Boiler	1994	6.42
			7.06
			40 CFR 60 Subpart Db
1001	174 MMBtu/hr Babcock and Wilcox Boiler		40 CFR 63 Subpart DDDDD

ii. **Standards/Operating Limits**1) **PM/PM₁₀/PM_{2.5}**

- a) In accordance with Regulation 7.06, section 4.1.2, since the total heat input capacity within the source is more than 250 MMBtu, the PM emission standards is 0.10 lb/MMBtu.
- b) A one-time PM compliance demonstration for the boiler, using AP-42 emission factors and combusting natural gas, has been performed and the emission standards for PM cannot be exceeded.

2) **Opacity**

In accordance with Regulation 7.06, section 4.2, the owner or operator shall not cause to be discharged into the atmosphere from any affected facility particulate matter emissions which exhibit greater than 20% opacity.

3) **SO₂**

- a) In accordance with Regulation 7.06, section 5.1.2, any gas discharged to the atmosphere cannot contain SO₂ in excess of 0.8 pounds per million BTU actual total heat input for combustion of gaseous fuels. The limit was determined using the total heat input for all indirect heat exchangers subject to Regulation 7.06 which totals more than 250 MMBtu/hr.
- b) The potential SO₂ emissions combusting #2 fuel oil were 854.7 tpy. The company agreed to an emission limit of 594.4 tpy for SO₂. Netting was performed for SO₂ and it "netted out". (Construction Permit 657-94-C) However, the source no longer burns fuel oil. The SO₂ PTE is now 0.92 tons/year.

4) **NO_x**

- a) Regulation 6.42, section 4.3 requires the permit applicant for NO_x emitting facilities to propose RACT emission limiting standards and RACT emission control technology. The source shall comply with the NO_x

RACT plan that was adopted by Board Order on November 8, 1999.

- b) From 40 CFR 60 Subpart Db, since the fuel/steam generating unit type is high heat release rate, the emission limit is 0.2 lb/MMBtu.
- c) Regulation 7.06 applies to these boilers, however since they are each less than 250 million BTU per hour, there is no applicable standard.
- d) The 0.2 lb/MMBtu limit for NO_x equates to 304.8 tpy and the potential NO_x emissions combusting natural gas are 203.2 tpy. Netting was performed for NO_x and it “netted out”. The construction permit was revised to lower the NO_x from 242.5 tpy to the potential NO_x emissions of 203.2 tpy.

5) **HAP**

Per Regulation 5.02, section 4.91, the source is subject to 40 CFR 63 Subpart DDDDD.

6) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

iii. **Monitoring and Record Keeping**

1) **PM/PM₁₀/PM_{2.5}**

There are no compliance monitoring requirements for PM for Regulation 7.06. However, Regulation 2.03, section 6.1 requires sufficient monitoring and record keeping to ensure ongoing compliance with the terms and conditions of the permit. The potential uncontrolled PM emissions are below the applicable PM emission standard.

2) **Opacity**

The District has determined that using a natural gas fired boiler will inherently meet the 20% opacity standard. Therefore, the company is not required to perform periodic monitoring to demonstrate compliance with the opacity standard.

3) **SO₂**

- a) Regulation 7.06 does not require any specific monitoring requirements to demonstrate ongoing compliance with the SO₂ emission standard. However, Regulation 2.03, section 6.1 establishes requirements for sufficient monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The potential uncontrolled emissions of SO₂ are below

the applicable emission standard in Regulation 7.06; therefore, no compliance monitoring is required.

- b) 40 CFR 60 Subpart Db requires the owner or operator to record and maintain records of the amount of each fuel combusted during each calendar month.

4) **NO_x**

- a) 40 CFR 60, Subpart Db requires a CEM system to be installed, calibrated and maintained.
- b) 40 CFR 60, Subpart Db requires records necessary to ensure compliance with the standards.

5) **HAP**

The source is required to comply with applicable monitoring and record keeping requirements of 40 CFR 63, Subpart DDDDD.

6) **TAC**

Per Regulation 5.21, section 2.7, the TAC emissions from the combustion of natural gas are considered to be “de minimis emissions” by the District. This includes all of the emissions from a process or process equipment for which the only emissions are the products of combustion of natural gas, such as from a natural gas-fired boiler or turbine, but does not include the other emissions from a process or process equipment that are not the products of the combustion of natural gas.

iv. **Reporting**

1) **PM/PM₁₀/PM_{2.5}**

There are no compliance monitoring requirements for PM for Regulation 7.06. The potential uncontrolled PM emissions are below the applicable PM emission standard. Regulation 2.03, section 6.1 requires sufficient reporting requirements to assure compliance with the terms and conditions of the permit.

2) **Opacity**

Regulation 2.03, section 6.1 requires sufficient reporting requirements to assure compliance with the terms and conditions of the permit.

3) **SO₂**

The source is required to comply with applicable reporting requirements of 40 CFR 60, Subpart Db.

4) **NO_x**

The source is required to comply with applicable reporting requirements of 40 CFR 60, Subpart Db and Regulation 2.03, section 6.1 requires sufficient reporting requirements to assure compliance with the terms and conditions of the permit.

5) **HAP**

The source is required to comply with reporting requirements of 40 CFR 63, Subpart DDDDD.

6) **TAC**

Per Regulation 5.21, section 2.7, the TAC emissions from the combustion of natural gas are considered to be “de minimis emissions” by the District. This includes all of the emissions from a process or process equipment for which the only emissions are the products of combustion of natural gas, such as from a natural gas-fired boiler or turbine, but does not include the other emissions from a process or process equipment that are not the products of the combustion of natural gas.

III. Other Requirements

1. **Temporary Sources:** The source did not request to operate any temporary facilities.
2. **Short Term Activities:** The source did not report any short term activities.
3. **Emissions Trading:** N/A
4. **Operational Flexibility:** The source did not request any operational flexibility for the emission points.
5. **Compliance History:**

Incident Date(s)	Regulation Violated	Result
06/04/1993	6.39 pursuant to 40 CFR 60 Subpart VV	Settled
07/01/1998	40 CFR 60 Subpart Db	Settled
01/27/2000	40 CFR 60 Subpart Db	Settled
09/03/2009	40 CFR 63 Subpart H and 40 CFR 63 Subpart NNNNN	Settled
06/30/2011	1.07 and 1.7	Settled

6. **Calculation Methodology:**

The emission calculations for the various pieces of equipment are derived from stack test results, AP-42 emission factors, EPA guidance documents, CEMs, mass balances and engineering judgments.

AP-42 Emission factors

- Combustion emissions (Chapter 1.4-1, 1.4-2, 1.4-3, & 1.4-4 (small boilers))

7. **Insignificant Activities:**

There are no insignificant activities in this project.